REMARKS

Formal Matters

Claims 58-64 and 66-72 are pending after entry of the amendments set forth herein.

Claim 57 was canceled and new claim 72 has been added to more particularly point out and distinctly claim the invention. The newly added claim is fully supported within the original application such as within the originally pending claims and within previously pending now canceled claim 57. In view of the cancellation of claim 57 and the addition of new claim 72 formal amendments have been made to the other claims. No new matter has been added.

Priority Claim

The Examiner has objected to the claim to priority. Applicants do not acquiesce to the objection. Applicants point out that to the extent that disclosure is contained within the application resulting in U.S. Patent 5,906,202, applicants claim priority to that disclosure. Accordingly, such disclosure is not prior art with respect to the present application. Thus, combining that disclosure with other references in order to reject the present invention does not constitute a rejection of the present claims in that the '202 patent is not prior art with respect to the present invention.

The Examiner has correctly pointed out that subject matter contained within the present claims is not completely disclosed and described within the application which resulted in the '202 patent. However, such is irrelevant with respect to applicants' claim to priority. In that applicants are entitled to claim priority to the '202 patent to the extent that the application included disclosure which, in part, supports the present claims.

35 U.S.C. §112 Rejection

Claims 57-64 and 66-71 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Applicants do not acquiesce to the rejection. However, as applicants understand the rejection it is focused on the phrase "results in condensing polynucleotide particles." The Examiner will note that this phrase is not present within newly added independent claim 72. Within new claim 72 applicants point out that the formulation which is aerosolized includes polynucleotides and a polynucleotide condensing agent. The condensed polynucleotides have a size of from about 20 to about 50 nanometers as claimed in new claim 72. This is a physical description of the condensed polynucleotides and

therefore meets the requirements of 35 U.S.C. §112. Accordingly, the rejection is believed to have been overcome.

Double Patenting Rejections

Beginning on page 12 and continuing to page 14 the Office Action includes a number of double patenting rejections. Applicants do not acquiesce to the validity of the rejections. However, applicants wish to expedite prosecution of this application. Accordingly, applicants have filed herewith a Terminal Disclaimer with respect to U.S. Patent 5,906,202. This Terminal Disclaimer renders moot all of the double patenting rejections.

35 U.S.C. §103 Rejections

Pages 4-10 of the Office Action includes numerous prior art rejections of the previously pending claims over an accumulation of multiple references. The rejections are traversed as applied and as they might be applied to the presently pending claims.

Applicants point out that the previous independent claim 57 has been canceled and new independent claim 72 has been added. New independent claim 72 is directed to a method of targeting an area of a patient's respiratory tract. That method involves three independent steps each of which includes specific parameters which are not, in combination, taught within any of the references. Before discussing each of the three independent steps applicants point out that the Office Action indicates that applicants claim priority to application Serial No. 08/752,946 which resulted in the issuance of U.S. Patent 5,906,202 to Schuster et al. Applicants have filed a Terminal Disclaimer with respect to the '202 patent. Because applicants claim priority to the application resulting in the '202 patent the '202 patent is not prior art with respect to the present invention. Accordingly, combinations of the '202 patent with other references to reject the claimed invention is not a valid rejection under 35 U.S.C. §102/103. In view of such reconsideration and withdrawal of all of rejections based on the '202 patent is respectfully requested. Notwithstanding this position applicants now refer to the three distinct steps of new independent claim 72 and point out how those steps are not disclosed within the prior art and as such render the current claims patentable.

First, applicants' method as claimed in new claim 72 involves aerosolizing a formulation in order to create aerosol particles. The condensed particles are comprised of polynucleotides and a polynucleotide condensing agent. The particles have a size in a range of from about 20 to about 50 nanometers. The closest art cited in the rejection relating to this step is the Gao et al. reference U.S.

Patent 5,795,587. Gao has been referred to at col. 11, lines 30-34. This disclosure includes a single word "aerosols" in support of the rejection. There is nothing within the reference which suggests that it is possible to use the formulations disclosed in Gao et al. in order to target an area of a patient's respiratory tract. The mere mention at col. 11, lines 30-34 of several different means of administration would, in no way, motivate one skilled in the art to combine Gao et al. with the other references in order to obtain applicants' invention. Further, even if they are combined there is no suggestion of forming an aerosol of aerosol particles which are comprised of polynucleotides and a condensing agent wherein the particles have a size of from about 20 to about 50 nanometers.

Second, applicants' method as claimed in new claim 72 involves adjusting the aerodynamic diameter of the aerosolized particles based on the targeted area of the patient's lungs. The concept of aerosolizing a formulation as per the first step of new claim 72 and then adjusting particle diameter to target the particles to an area of a patient's respiratory tract is not taught in the combination of references.

Third, applicants' method as claimed in claim 72 involves controlling inhaled volume. This controlling is in two areas. First, the invention involves controlling the patient's inhaled volume of aerosolized formulation. Second, it is involves controlling the patient's inhaled volume of aerosol-free air. This step of the method can involve inhaling a certain volume of free air in order to partially fill the lungs and thereafter inhaling aerosolized formulation to direct the aerosolized particles to a different area of the lung. Alternatively, the method can involve inhaling the aerosol followed by inhaling free air in order to direct the aerosol to yet a different area of the lung.

Applicants' method directs aerosol particles of a formulation which include the condensed polynucleotides to specific areas of the lung. This increases the degree of efficiency of the delivery methodology. The combination of these steps is not taught or suggested within the combination of references. Further, the references are not obviously combinable with each other absent applicants' teachings.

Each of the 35 U.S.C. §103 rejections relies on the Schuster et al. '202 patent as the primary reference. However, as pointed out above the Schuster et al. '202 patent is not prior art with respect to the present invention in that applicants claim priority to the application resulting the '202 patent and have filed a Terminal Disclaimer with respect to the '202 patent.

The rejection has referred to the '202 patent at col. 38, line 3 and col. 2, line 33. These portions of the specification do include the phrase "gene vector" and do refer to inhaling a volume of air in order to fill the patient's upper respiratory tract. However, there is no disclosure with respect to a method as

claimed in new claim 72. Specifically, there is not disclosure with respect to condensed polynucleotides which have a size from 20 to 50 nanometers. Further, there is no disclosure with respect to controlling the patient's inhaled volume of aerosolized formulation as well as aerosol-free air in order to direct aerosol particles to an area of the patient's lung.

U.S. Patent 6,030,834 to Chu et al. is directed towards a novel kinase. There is no teaching contained within the patent with respect to using condensation agents with nucleotide sequences in order to create aerosol formulations which are directed to a particular area of a patient's respiratory tract.

U.S. Patent 5,756,353 to Debs has been cited in support of the rejection. However, Debs has been cited for its disclosure of lipids and condensing DNA. However, the reference does not refer to condensing. Thus, one skilled in the art would no find it obvious to combine Debs with other references in order to carry out the first step of applicants' invention let alone the combination of steps necessary to teach new claim 72.

U.S. Patent 5,049,389 to Radhakrishnan has been cited for its disclosure of the penetration of aerosols into the respiratory tract being related to aerodynamic diameter. Applicants are not claiming this basic idea. Applicants are claiming the basic method of claim 72 which involves targeting an area of the patient's respiratory tract. That method is not taught within the '389 patent as taken alone or in combination with the other references.

References Not Combinable

In deciding the question of obviousness under 35 U.S.C. §103 it is not realistic to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such a reference fairly suggests to one of ordinary skill in the art. Here, references such as Gao et al. do not fairly suggest to one of ordinary skill in the art a method of inhaling aerosolized formulations of polynucleotides and directing those formulations to particular areas of the lung. The mere existence in the prior art of individual features of a claimed invention, does not, without more, render that claim obvious within the meaning of 35 U.S.C. §103. Thus, the mere disclosure of the word "aerosol" within Gao et al. does not make it obvious to combine Gao et al. with other references such as Schuster et al. in order to obtain applicants' invention. There must be positive evidence that the bringing together of such features or steps would have been obvious to an ordinarily skilled person. Here, the references have been combined together only by utilizing the hindsight provided by applicants' own teachings. Accordingly, the rejection should be reconsidered and withdrawn.

In the event minor issues remain unresolved the Examiner is respectfully requested to contact the undersigned attorney at the indicated telephone number to arrange for an interview to expedite disposition of this application.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number AERX061.

Respectfully submitted,
BOZICEVIC, FIELD & FRANCIS LLP

Date: 4/NOV/04

By: _____
Karl Bozicevic
Registration No. 28,807

BOZICEVIC, FIELD & FRANCIS LLP
1900 University Avenue, Suite 200
East Palo Alto, CA 94303
Telephone: (650) 327-3400
Direct: (650) 833-7735
Facsimile: (650) 327-3231

F:\DOCUMENT\AERX\061\amend to oa 5-4-04.doc